DOCUMENT RESUME

ED 393 429 IR 017 765

AUTHOR Sutton, Ronald E.
TITLE Image Manipulation: Then and Now.
PUB DATE 93
NOTE 9p.; In: Verbo-Visual Literacy: Understanding and Applying New Educational Communication Media Technologies. Selected Readings from the Symposium of the International Visual Literacy Association (Delphi, Greece, June 25-29, 1993); see IR 017 742.
PUB TYPE Reports - Evaluative/Feasibility (142) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Documentaries; Editing; *Film Production; *Photography; Photojournalism; *Production Techniques; *Special Effects; *Visual Literacy
IDENTIFIERS *Digital Imagery; *Digital Technology; Electronic Cameras

ABSTRACT

The images of photography have been manipulated almost from the moment of their discovery. The blending together in the studio and darkroom of images not found in actual scenes from life has been a regular feature of modern photography in both art and advertising. Techniques of photograph manipulation include retouching; blocking out figures or details; cutting out a figure from the background and placing it in a new setting or with a new group; recentering; and slicing a figure or area out of the center and joining the edges. From the beginning of motion pictures, special effects have been present to reshape reality. Many fiction film techniques such as reenactment, directing, scripting, and actors were used in the documentary field up until about 1960, then discarded for a decade or so, and now have reappeared in post modern documentary production. With the advent of the computer and digital technology, images have become more untrustworthy than ever and fakery has become more difficult to detect. One of the devices that may hasten the "decay" of photo journalistic integrity and credibility is the electronic camera. It is the task of the visual educator is to help learners to become visually literate and to be skeptical about how images are created and for what reasons. (Contains 23 references.) (AEF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Alice D. Walker
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

IMAGE MANIPULATION: THEN AND NOW

by
Ronald E. Sutton

ED 393 429

Image Manipulation Then and Now examines the role of image trustworthiness in our 20th century society. The argument is a simple one: Photographic imagery, both still and motion, has always lied (Goldsmith, 1991). The question in the age of digital cameras is whether the lies can be detected. That is a difference--lying with a trace, and lying without a trace. Art Curator William M. Ivins wrote "The 19th century began by believing that what was reasonable was true, and it would end up by believing that what it saw photograph of was true" (Zelle & Sutton, 1991). At the close of the 20th century that belief needs to be challenged.

The foundations of science, law, history, and anthropology are entwined with the "truth" of photography. As is pointed out in a number of scholarly works (Barnouw, 1981; Jaubert, 1989; Mast, 1984; Rosenblum, 1984), this is a misplaced trust. The images of photography were manipulated almost from the moment of their discovery. The early technology of photography simply could not accommodate the dark tones of the land and the bright tones of the sky in the same shot. This was solved in the darkroom by stripping two different photographs together. Sometimes the clouds or other details of the scene were painted in on the print (Zelle & Sutton, 1991). Also, what began as an attempt to remove specks of dust, gelatin flakes, broken glass with paintbrush and paint soon gave way to erasing wrinkles, blemishes, and ultimately unpopular people from historic photographs (Jaubert, 1989).

In the hands of such photographers as Oscar G. Rejlander and Henry Peach Robinson, totally fabricated images were produced involving as many as twenty negatives (Zelle & Sutton, 1991). This trend in photographic art has continued to the present day in the works of such artists as Jerry Uelsmann, Cindy Sherman, and Nic Nicosea. The blending together in the studio and darkroom of images not found in actual scenes from life has been a regular feature of modern photography in both art and advertising.

Despite the weight of authenticity placed on them ("if it's a photograph, it must be true"), it is quite clear from observing the historical record that the photographic record has been manipulated by those behind the camera or in the darkroom. Alain Jaubert (1989), in this book "Making People Disappear: An Amazing Chronicle of Photographic Deception," underscores how this manipulation of photographs for political propaganda reached its apex in the 20th century. In this excellent study Jaubert categorizes the favorite techniques of the photo manipulators:

Retouching

Using a brush and/or paint to remove an imperfection in the print and/or negative.

Blocking

Painting out figures or details from the actual site of the photograph often to idealize a figure or change a historical context.

Cutouts/Collage/Montage

Cutting out a figure from the background and placing it in a new setting or with a new group. Non-matching shadows often give this technique away.

Recentering

Cropping or framing a picture in re-photography or printing to exclude

IR017765

BEST COPY AVAILABLE

unwanted figures or information at the sides and edges.

Effacement

Slicing a figure or area out of the center of a picture, then joining the edges, and retouching to smooth the seam or fill in the blank. (Sometimes the blank is left to warn those who might challenge the regime in power.) Difficult to do without leaving traces seen by the trained eye (Jaubert, 1989; Zelle & Sutton, 1991).

This catalogue includes only those techniques that are used on an already existing historic photograph. It does not deal with the question of distortion that is built into the photographic *choices* used in creating the photo in the first place. These include choices of:

- subject, costume, make-up,
- film stock,
- lens: wide angle, normal, telephoto,
- angle: high, low,
- aperture/light,
- shutter speed and shapes and depth of field,
- type of shot, long, medium, close up,
- framing of the subject.

Many persons have a quite limited understanding of how these factors have shaped the historical photographic record since the medium's invention in 1939.

Motion Pictures

Similarly, since 1895, projected motion pictures have shared with still photography the burden of appearing to be an accurate record of actual events. However, they share all the above-listed *choices* with their forerunner, still photography. Perhaps they are even more illusionary for they evoke the sensation of watching motion, when in actuality they are merely the projection of successive still images. These occur rapidly enough so that, thanks to the phenomenon of persistence of vision, the image of one picture blends with the next at a rate of some 24 frames a second to render a convincing illusion of motion.

From the beginning of motion pictures, special effects have also been present to reshape the reality that we watch. People appear and disappear by stopping and starting the camera; whole towns and distant vistas are added to film via matte painting on glass; miniatures made to scale, coupled with authentic mechanicals, fool us into thinking that things are happening on screen that are impossible, from "King Kong" to "Jurassic Park" (Fielding, 1965).

In the area of narrative fiction films this is hardly a problem since few questions of historicity are involved; however, when we turn to the documentary film form, or educational film, we come upon similar or parallel devices that are used to portray historic events. Many fiction film techniques such as reenactment to achieve matching action, directing, scripting, actors, etc., were used in the documentary field up to roughly 1960, discarded for a decade or so, and now have found their way back into post modern documentary production (Barnouw, 1981).

Traceable Fakery

Most of what has been discussed to this point can be identified by a trained and visually literate eye and mind. Books on the cinema (Cheshire, 1979; Giannetti, 1987; Mast, 1984; Monaco, 1981) abound with information about how illusions are created in fiction film. The documentary field has also been revealed to the world through scholarly work as well (Barnouw, 1993; Barsam, 1993; Ellis, 1989).

Even this quick overview (Zelle & Sutton, 1991) illustrates that even though the public may follow Oliver Wendell Holmes in viewing photography as a "mirror with a memory" the public needs now to know that the mirror was always cracked, the memory was faulty, selective, and manipulated, a construct of whomever was holding the 'mirror.' The public needs to know this about the past, for the present and future will demand even more skepticism when it comes to trusting the photographic image.

Computerized Imagery

With the advent of the computer and its related technologies the world of photography has been revolutionized. Whether reworking existing images, creating new ones on program command, or capturing fresh images through a new breed of electronic cameras, there is little question that images have become even more untrustworthy than ever.

This is all done through digitization. This is a process in which the photograph is scanned by machine and broken down into tiny picture elements called *pixels*. Each pixel is analyzed for information (shape, color, brightness, etc.) and assigned a numerical code. Then the computer can make a number of changes before storing the final image on a magnetic disk:

- retouch spots and scratches,
- brighten or change color,
- add new elements to the picture; move or eliminate existing material,
- extend backgrounds to fit page format, fill in new holes caused by removals,
- draw in shadows to make a common light source,
- turn images in perspective or cast them in three dimensions (Zelle & Sutton, 1991).

This started as a very high end operation costing thousands of dollars and involving such names as Scitex, Hell, and Crosfield. Now, it can all be done on desk top personal computers, especially Photoshop by Macintosh.

The values to the entertainment, advertising, and mass communication industries are immeasurable in terms of efficiency, economy, and effect. Clearly there is much that is beneficial in this revolution that is still creating more wonders for us to absorb each year.

But clearly there are dangers here as well. Some of these serious concerns were addressed at a seminar sponsored by The Annenberg Washington Program in Communications Policy Studies of Northwestern University, held December 10, 1991 in Washington, D.C. Don E. Tomlinson (1993) has created a significant monograph entitled "Computer Manipulation and Creation of Images and Sounds: Assessing the Impact" based on this seminar.

I quote at length from the Executive Summary of the seminar and monograph because of the clear note of alarm it sounds and the probing questions it raises.

> Technological change in mass communication is occurring so rapidly it is impossible to stay completely abreast of even the most significant changes, much less their meaning and possible ramifications. Some of the changes may seem evolutionary. Others, however, are revolutionary, such as the switch from analog to digital technology. With the coming of the computer, the change simply was inevitable.
>
> This transition has two major and interrelated facets. One has to do with the means of communication. The other, and perhaps more important, has to do with the content

> of what is to be communicated because digital technology makes possible the easy, quick, and undetectable manipulation of images and sounds
>
> The potential effect on journalism is profound. How will our lives change when we can no longer trust the images and sounds provided to us by the news media? How will our lives change when government and politicians and historians can manipulate the images and sounds we see and hear?. . .
>
> The potential legal ramifications are also immense. Given the degree of digital visual and aural manipulation that could occur, especially in the news media, there are implications of the First Amendment. Copyright law as we know it today could prove to be wholly inadequate as a means of protecting ownership interests in images and sounds. Tort law implications arise in relation to libel, false light privacy invasion, product disparagement, and right of publicity, among others. There will be considerable contract-law implications. Will images and sounds continue to be admissible evidence once the product of recorded communication exists only in the digital domain?. . . (Tomlinson, 1993)

The changes that Tomlinson outlines are noteworthy and serious--an agenda for educators of all types. However, what I have tried to point out, in the earlier pages of this paper (and in earlier publications done with my colleague Ann Zelle) is that we should help people see that their faith in the simple veracity or trustworthiness of image communication has *always* been misplaced. In the terms of present day analytical scholarship especially related to media literacy, it is important to assist all persons to understand that media images are constructs. They are created for a variety of reasons, one of which, in our society, is to make money for their creators. Truthfulness and reliability may enter into the equation but at a lower priority than many laypersons would realize.

The task of the visual educator is to help learners see these aspects, to help them to become visually literate. Being skeptical about how images are created and for what reasons they have been constructed should be a fundamental tenet of all modern curriculums in all fields, in all professions.

Some may quarrel with the term skepticism. That may not seem to be an appropriate element in helping the young understand their world. Should we make young children *skeptics* from the start? Can cynicism be far behind? I am afraid, for the time being, my answer is a vigorous yes and the sooner the better. Distinguished media scholar, Raymond Fielding (1987), who attended the Annenberg Seminar, puts the issue this way writing in "Newsfilm as a Scholarly Resource: Opportunities and Hazards:"

> The problem of editorial distortion and misrepresentation is one with which we have had to deal for many years. However, a far more serious problem faces us in our technologically elegant future. Computer hardware and software now exists for the unlimited modification and digital retouching of still and moving picture photographs and in a manner which is undetectable.

It is the undetectable part that is chilling. This is related to the digital wizardry of the computer. In analog copying and modifying the copy print exhibits a generational loss from the original. In digital transfer no such loss is detectable. Here is the way Tomlinson (1993) describes it:

> In digital videotape editing, there is absolutely no loss of quality from generation to generation because the source signal is not being transferred

> to the resulting videotape, as is the case with the analog technology. The resulting videotape, through the digital process, receives binary computer information; it is a mathematical recreation, not a transference. And since it is purely a mathematical process, the source image can be altered fundamentally and undetectably before and/or during the reproduction. (p. 10-11)

What this means is that there is no original negative/print/tape against which to compare the altered version.

The possibilities for mischief, historical, political, legal, and cultural, are legion. Suddenly, a long hidden photograph showing Lee Harvey Oswald meeting with Fidel Castro could become a part of the historical record, lending credence, if not proof, to that particularly conspiracy theory about the Kennedy assassination. Here is Tomlinson's (1993) well-chose scenario:

> The 1981 footage of the Reagan assassination attempt, for example, might be amended as follows:
>
> 1. a few representative frames amended by the removal of the other individuals from in front of the President when he was shot;
>
> 2. additions in those frames to show what an unobstructed view of Reagan getting shot might have looked liked; and
>
> 3. the computer then filling in what the remaining frames would look like given the human amending already done.
>
> Once any such amendings were completed, the human editor would command the computer to review, refine, and reform any frames that did not look photographically real. The entire process would take only a few minutes. (pp. 12-13)

Sounds Also Can Lie

It is clear that sound reality is in every bit as much danger of modification and invention as image reality. The same digital techniques can be used to alter, or *sample* or *clip* sound. While some sections of our society may care little when this remains a battle between record companies over *digitally sampling* rap stars, the fact that the President of the United States, or Yasser Arafat, and Yitzhak Rabin could be made to say something with their own voice which they actually never said is quite disturbing at this delicate point in the Middle East peace process.

Reaction to Manipulation

Moving to the area of application and implication it is interesting and encouraging to note the shock with which news of digitilization of photographs is met when exposed to the public:

- *TV Guide's* gaffe in placing Oprah Winfrey's head on Ann Margaret's body (Zelle & Sutton, 1991).
- The *National Geographic's* rearrangement of the pyramids for its February 1982 cover (Becker, 1991; Tomlinson, 1993; Zelle & Sutton, 1991).
- The *Time* 1988 special issue on the 150th anniversary of photography that pledged it would never digitally manipulate a photograph, yet contained a digitally manipulated image of Mary Decker on its cover and inside page (Tomlinson, 1993).

In both his writing and personal lecture and interview, freelance photographer and journalism professor Tony Kelly indicates that the profession is being hard-pressed to control the easy manipulation of images. When is it innocent--taking out the offending antenna that seems to spring from Mary Decker's

body, and when is it catastrophic--albeit amusing--when a picture of a swimming pool was digitalized back to blue from red because the computer folks did not know it was to accompany a story in the Orange County *Register* about vandals dumping red dye in a local pool? (Becker, 1991; Kelly, 1992).

Photojournalism at Risk

Many feel that photo journalistic integrity and credibility may be at stake (Tomlinson, 1993).

> If photographic reality were defined by a consumer of photojournalism, the definition might be: the images presented accurately represent the object of the photography as recorded and subsequently disseminated by mass communicators. Because photographic reality in photojournalism translates to credibility, it is an essential ingredient of any mainstream American journalistic enterprise.

Many scholars, including Tomlinson (1993), feel that photo-journalistic credibility will be seriously challenged if not completely undermined by the new digital revolution.

One of the devices that may hasten this decay is the electronic camera.

Electronic Cameras

Sony announced the Mavica in 1981. A working prototype was demonstrated and Mr. Murita of Sony stated that this device would revolutionize photography (Edwards, 1993; Becker, 1991).

Canon joined the field and developed its video still camera by 1986. It presently markets this equipment actively (an ad for the system was contained in the United Airlines Flight Magazine I read on the way to the Visual Literacy Symposium in Delphi, Greece [*Hemispheres*, June 1993]), (Edwards, 1993).

Sony now has the ProMavica which stands for Magnetic Video Camera. This uses analog images not converted immediately to digital. This camera lists for $9,000 (Edwards, 1993).

Kodak's DCS 100 and 200 digital imaging camera uses a computer chip. Here is a consumer oriented blurb from *Byte* magazine (1993):

> The Kodak DCS 200ci shares a lineage with Kodak's original electronic camera, but some important advances distinguish it. Its price comes in at under $10,000, yet it provides the same resolution and quality as its $25,000 stablemate in a smaller, consumer-oriented package. Pictures are stored on an internal hard drive and downloaded directly to a PC or a Mac. Operating costs are virtually eliminated: There's no film to buy and no need for a high-quality scanner. Results are almost instantaneous, and in an ecology-conscious world, there's no film or chemical wastes to worry about.

An article by Howard Eglowstein (1993) in this same edition of *Byte* gives an extensive test comparison of the Sony MVC 7000 and the above-mentioned Kodak DCS 200ci. They are both evaluated as quick, efficient cameras that take instantly reviewable pictures without film but with lower resolution than film.

Tony Kelly (1993) explained that they do not work well for full page glossy magazine work: "You can go up to three column width but blowing them up beyond that is a problem as to sharpness, resolution, and picture quality."

A final entry in this field is the Leaf Digital Studio Camera. This is a camera back which attaches to conventional studio cameras such as Hasselblad, Sinar, Cambo, and Mamiya Rx-67 and feeds the images into a Mac computer. Developed and connected to Scitex, Leaf is centered

in the Boston area (Leaf, 1993; Schlowsky, 1992).

This system is used primarily in studio work with advertising and I suspect causes little problems due to the low credibility rating of ad photography historically.

Conclusions

What I have tried to argue is that image manipulation is not something new. It has been present since the birth of both still and motion photography. The element that is tricky is the *without a trace* and the *ease of accomplishment* factors, both of which I have tried to highlight in my presentation.

There is little question that there is a need for broad, candid, and simple information sharing, for education of the most basic kind. There is also a need for more rigorous professional standards. Kelly (1991) speaks of this in the June 1991 edition of *Editor and Publisher* when he quotes one of the protocols developed at the Poynter Seminar on Journalistic Ethics:

> Manipulation of (documentary and news) photographs, which alters the content or context, is unacceptable. Electronic or manual methods should be used only to assure the highest reproduction quality of the photograph. Photo illustrations are conceptual images and should be (easily) distinguishable from documentary photography.

Karin Becker's (1991) study of the pages of *News Photographer*, the official monthly publication of the National Press Photographers' Association, reflects the same concerns that the credibility of the press photograph be salvaged through applied professional standards and guidelines. However, many feel this simply will not work in a profession that, unlike Law and Medicine, is not a profession with recognizable standards for entry and ouster.

What is really needed is education of the consumer in visual literacy and media literacy. Ray Fielding suggests some of those in the media might help with this vast educational task (Tomlinson, 1993):

> . . .they should make some exciting programs about the new technology itself so as to bring the audience into the process; thereby making the audience aware of the problems of the information communicator and of the historical communicator. In this way it is the audience who would in the end decide what will be done with this exciting new technology that has been made available to us (Tomlinson, 1993, p. 57).

We can use the media to teach about the media. We can use the media or let the media use us. One of the tasks for the 21st century in the area of Visual Literacy is to teach people about Image Manipulation: Then and Now.

References

Barnouw, E. (1981). *The magician and the cinema*. New York: Oxford University Press.

Barnouw, E. (1993). *Documentary: A history of the non-fiction film*. New York: Oxford University Press.

Barsam, R. (1993). *Non-fiction film: A critical history* (rev. ed.). Bloomington, IN: Indiana University Press.

Becker, K. E. (1991) To control our image: Photojournalists and new technology. *Media, Culture, and Society*. London, Newbury Park, & New Delhi.

Byte. (1993, January). *18*(1).

Cheshire, D. (1979). *The book of movie photography*. New York: Alfred A. Knopf.

Davis, D. (1985, June 3). Seeing isn't

believing. *Newsweek*, 68-70.

Edwards, E. (1993, July). Sony Office. Telephone interview.

Ellis, J. (1989). *The documentary idea.* Newark, NJ: Prentice Hall.

Eglowstein, H. (1993, January). Photography by the numbers. *Byte, 18*(1), 241-244.

Fielding, R. (1987). Newsfilm as a scholarly resource: Opportunities and hazards. *Iamhist, 7*(1), 53.

Fielding, R. (1965). *The techniques of special effects cinematography.* New York: Hastings.

Giannetti, L. (1987). *Understanding movies* (4th ed.). Newark, NJ: Prentice Hall.

Goldsmith, A. (1991). Photos always lied. *Popular Photography, 98,* 68-75.

Jaubert, A. (1989). *Making people disappear* (English ed.). Washington, DC: Pergaman-Brassey.

Kelly, T. (1993). Technology, interest are forcing newspapers to be image-conscious. *Chicago Journalist, 3*(1) 1, 4, & 5.

Kelly, T. (1992, November). *Manipulating reality: From cave images to digital voodoo.* Lecture given at The American University, Washington, DC.

Kelly, T. (1993, June 6). Telephone interview.

Kelly, T. (1991, June 8). Manipulating reality. *Editor and Publisher,* 16-17.

Mast, G. (1984). *A world of history of photography.* New York: Albeville Press.

Schlowsky, L. (1992, November). Digital vision: The birth of a filmless photography studio. *Photo Electronic Imaging.*

Tomlinson, D. E. (1993). *Computer manipulation and creation of images and sounds: Assessing the impact.* The Annenberg Washington Program in Communications Policy Studies of Northwestern University, Washington, DC.

Zelle, A., & Sutton, R. (1991). Image manipulation: The Zelig phenomenon. *Journal of Visual Literacy, 11*(1), 10-37.